



### Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

#### Listing of Claims:

1-28. (Canceled)

29. (New) A method of transducing a conformational change in a signaling aptamer upon binding a ligand to an optical signal, the method comprising:

- (a) providing a signaling aptamer comprising a reporter molecule covalently coupled to an aptamer, wherein in the unbound state an optical signal produced by the reporter molecule is quenched by the aptamer's conformation relative to the optical signal produced by the reporter molecule when the aptamer undergoes a conformational change upon binding to its ligand;
- (b) contacting the signaling aptamer with the ligand under conditions whereby the signaling aptamer binds the ligand; and
- (c) detecting the differential optical signal produced by the reporter molecule as a result of the conformational change to the signaling aptamer upon binding the ligand.

30. (New) The method of claim 29, further comprising the step of quantitating the amount of ligand bound to the signaling aptamer.

31. (New) The method of claim 29, wherein the optical signal is selected from the group consisting of fluorescence, colorimetric intensity, anisotropy, polarization, lifetime, emission wavelength, and excitation wavelength.

32. (New) The method of claim 29, wherein the covalent coupling of the reporter molecule to the signaling aptamer occurs during chemical synthesis, during transcription, or post-transcriptionally.

33. (New) The method of claim 29, wherein the reporter molecule is a dye.
34. (New) The method of claim 33, wherein the dye is a fluorescent dye.
35. (New) The method of claim 34, wherein the fluorescent dye replaces a nucleic acid residue or is inserted between two nucleic acid residues of the signaling aptamer.
36. (New) The method of claim 34, wherein the fluorescent dye is acridine or fluoresceine.
37. (New) The method of claim 29, wherein the signaling aptamer comprises RNA, DNA, modified RNA, or modified DNA.
38. (New) The method of claim 29, wherein the signaling aptamer is an anti-adenosine signaling aptamer.
39. (New) The method of claim 38, wherein the anti-adenosine signaling aptamer is ATP-R-Ac13 or DFL7-8.
40. (New) The method of claim 35, wherein the fluorescent dye replaces a nucleic acid residue adjacent to a functional nucleic acid residue of the aptamer or is inserted between the functional nucleic acid residue and the nucleic acid residue adjacent to the functional nucleic acid residue.
41. (New) The method of claim 29, wherein the signaling aptamer is in solution.
42. (New) The method of claim 29, wherein the signaling aptamer is immobilized on a solid support.
43. (New) The method of claim 42, wherein the solid support is a chip.